Comprehensive Conservation Plan

Bowdoin National Wildlife Refuge Complex

Montana

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Summary

The U.S. Fish and Wildlife Service has prepared a comprehensive conservation plan for the Bowdoin National Wildlife Refuge Complex in Montana. The Regional Director of the Mountain–Prairie Region of the Service selected the following alternatives from the draft comprehensive conservation plan and environmental assessment as the preferred alternatives, which have been combined to compose the final CCP:

- *Alternative B*—overall refuge complex management
- *Salinity Alternative 4*—underground injection and flushing by Beaver Creek (addresses salinity)
- *Lake Thibadeau Refuge Alternative 2*—divest Lake Thibadeau National Wildlife Refuge

The refuge complex covers 84,724 acres in north-central Montana, spread across Blaine, Hill, Phillips, and Valley Counties. With its headquarters near the town of Malta, the refuge complex comprises the following units:

- Bowdoin National Wildlife Refuge
- Black Coulee, Creedman Coulee, Hewitt Lake, and Lake Thibadeau National Wildlife Refuges (unstaffed satellite refuges)
- Bowdoin Wetland Management District—nine waterfowl production areas, refuge and flowage easements, wetland conservation easements, and grassland conservation easements

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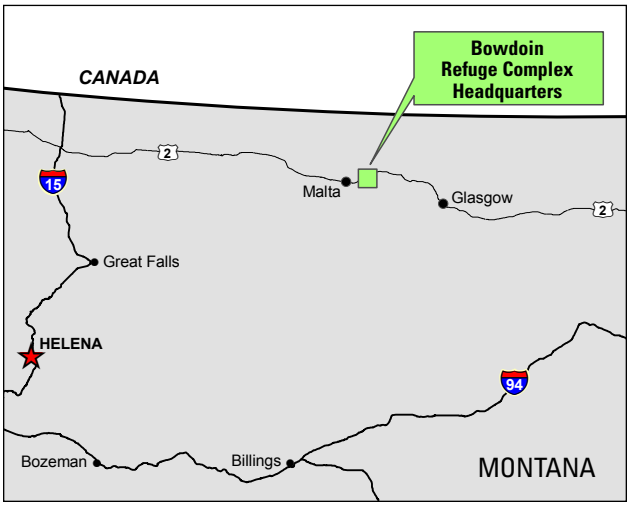
Chokecherry is a native shrub in the Bowdoin National Wildlife Refuge Complex.

The Refuge Complex

The Bowdoin National Wildlife Refuge Complex is within the Prairie Pothole Region of the Great Plains. While the five national wildlife refuges and the wetland management district were established under different authorities, they all have the overriding purpose of providing migration, nesting, resting, and feeding habitat for migratory birds.

The Bowdoin Refuge and waterfowl production areas in the Bowdoin District provide opportunities for the public to enjoy compatible wildlife-dependent public use activities such as hunting, fishing, wildlife observation, photography, environmental education, and interpretation.



The Future of the Refuge Complex

The vision for Bowdoin National Wildlife Refuge Complex is based on the establishing purposes of the refuge complex, resource conditions and potential, and the issues identified during the planning process. The goals were developed to meet the vision for the refuge complex.

Vision

Under seemingly limitless skies, Bowdoin National Wildlife Refuge Complex provides vast expanses of gently rolling native mixed-grass prairie, dotted with an array of diverse wetlands.

Recognized as one of the most important migratory bird refuges in the State of Montana, these habitats are managed to ensure that grassland- and wetland-dependent waterfowl, shorebirds, songbirds, and native wildlife species thrive.

Visitors recognize these unique and wondrous qualities and experience a sense of solitude and a connection to the land that fosters a desire to conserve this and other remnants of the northern Great Plains.

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Marbled godwit and long-billed curlew are shorebirds that nest in native prairie at the refuge complex.

Goal for Upland Habitat and Associated Wildlife

Protect, enhance, and restore grassland habitat for breeding and migratory birds and other wildlife while maintaining the biological diversity and integrity of native prairie grasslands.

Goal for Wetland Habitat and Associated Wildlife

Provide, protect, and manage wetland habitat for breeding and migratory birds and other wildlife that maintains the biological diversity and integrity of prairie pothole wetlands.

Goal for Salinity and Blowing Salts

Develop a water management system on Bowdoin National Wildlife Refuge that protects the environment and mitigates current and future blowing salt concerns for neighboring properties, while providing quality water and wildlife habitat for migratory birds and other wetland-dependent wildlife.

Goal for Visitor Services

Provide visitors of all abilities with wildlife-dependent recreation, interpretation, and environmental education opportunities that foster an appreciation and understanding of the unique wildlife, plant communities, and cultural resources of the Montana Prairie Pothole Region.

Goal for Partnerships

Maintain and expand partnerships that preserve, restore, and enhance healthy and productive prairie-wetland complexes on Bowdoin National Wildlife Refuge and within Bowdoin Wetland Management District.

Goal for Operations

Prioritize for wildlife first and emphasize the protection of trust resources in the use of staff, funding, partnerships, and volunteer programs.

Management of the Refuge Complex

The comprehensive conservation plan directs the management of the Bowdoin Refuge Complex to meet the purposes of the refuge complex and address issues.

The plan is intended to be a broad umbrella of general concepts and specific objectives for wildlife, habitat, visitor services, and partnerships over the next 15 years. As the plan is implemented, the Service will develop stepdown plans with details for carrying out the actions needed to achieve objectives.

Habitat and Wildlife

The Service will conserve natural resources within the Bowdoin Refuge Complex by restoring, protecting, and enhancing native mixed-grass prairie and by maintaining quality wetland habitat for target migratory birds, such as northern pintail, and resident birds.

Uplands and Wetlands

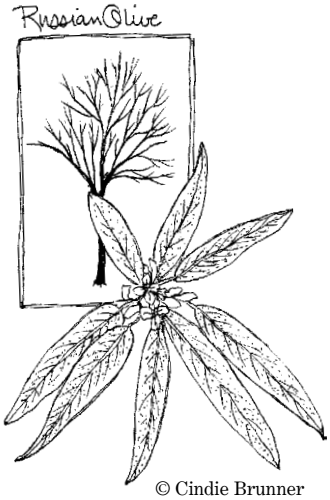
Native prairie areas and wetlands are the most productive habitat types in Montana, particularly in the Prairie Pothole Region. Historically, the northern Great Plains was a grassland-dominated system. This large expanse of treeless prairie has been fragmented by cropland, shelterbelts, human settlement, and the uncontrolled spread of nonnative Russian olive. Native mixed-grass prairie will be protected, restored, and enhanced to provide quality nesting habitat for targeted grassland-dependent birds.

Enhanced wetlands will be managed to mimic natural conditions for target wetland-dependent migratory birds during migrations and breeding.

In addition, the Service has committed to work with willing landowners in Montana to compensate them for protecting these habitats, primarily through perpetual wetland or grassland conservation easements.

Nonnative and Invasive Plants

Nonnative and invasive plants that are causing habitat losses and fragmentation will be controlled or eradicated. The refuge complex is constantly challenged to maintain its native grassland—critical to migratory birds—unfragmented by nonnative trees and shrubs. One of the most damaging species, Russian olive trees can take over and fragment native vegetation, interfere with nutrient cycling, damage water control structures and fences, and tax water reserves. These trees will be strategically removed and the treated sites will be monitored for reinvasion.



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The Service will conduct research to control crested wheatgrass, an invasive grass, and restore treated areas. Leafy spurge, perennial pepperweed, and Canada thistle are the primary invasive forb species. Left unmanaged, these species can have a detrimental effect on the diversity of native plants, wildlife, and habitat quality.

Lake Bowdoin Salinity Levels

The principle sources of water for the Bowdoin National Wildlife Refuge are precipitation, floodwater from Beaver Creek, ground water seepage, water deliveries from the Milk River Project, and irrigation return flows. The last three sources of water add dissolved solids (salinity) to the refuge. As water evaporates from Lake Bowdoin's closed system, salts become concentrated and water salinity increases. The progressively increasing salinity levels in Lake Bowdoin and the blowing salts out of Dry Lake threaten migratory birds and other wildlife, wetland habitats, and, potentially, neighboring landowners and downstream irrigators.

Management of salts at Bowdoin Refuge is tied to water management. To survive as a viable migratory bird refuge, Bowdoin National Wildlife Refuge needs more water and the means to reduce and dispose of saline water.

Long-term water management will be a flow-through system where the refuge receives a sufficient quantity of water that could eventually spill into Beaver Creek, carrying (flushing) with it a quantity of salts equal to what has entered the refuge. This system will allow salts to pass through the refuge rather than accumulating in Lake Bowdoin, which will minimize blowing salt events and improve wildlife habitat. With the current salt concentrations, a flow-through system is not possible due to the potential environmental impacts to primarily downstream water users along Beaver Creek.

The short-term target for salt management is to use management action—an underground injection well to force saline water deep into the ground—to remove sufficient salts so the Service can release wa-

Mike Artmann / USFWS

Salt residue covers the shoreline on the southeastern edge of Lake Bowdoin in late summer.

ter to Beaver Creek without significantly increasing the salinity of the creek water or negatively affecting downstream users. This will also prevent the salts in Lake Bowdoin from becoming extremely concentrated, which would negatively affect wetland habitat and wildlife.

Visitor Services

An estimated 25,000 visitors come to explore the Bowdoin Refuge Complex annually. A major attraction for wildlife observers and hunters, the refuge complex is also popular with local school groups.

Enhanced visitor services programs will provide more opportunity for visitors to learn about migratory shorebirds, waterfowl, and other wildlife species that rely on so many aspects of the native prairie. For self-guided visitors, the Bowdoin National Wildlife Refuge's auto tour route offers excellent opportunities, including an upcoming new observation site, for viewing and photographing wildlife. These opportunities will lead to a greater understanding of the importance of conserving migratory birds and the unique mixed-grass prairie and wetlands.

A sanctuary area, closed to all foot traffic, will be created for waterfowl on the east half of the Bowdoin Refuge during the hunting season. The Service will work with the State to investigate the potential for offering a safe, compatible, and quality big-game hunt at Bowdoin Refuge.

Partnerships and Operations

The Bowdoin Refuge Complex manages or protects 84,724 acres. The success of the plan's increased efforts and programs depends of the Service's ability to add staff and infrastructure, accomplish monitoring and research, and develop partnerships. The large size of the management area (four counties) requires long travel times for a limited staff. This makes it difficult to monitor units and conduct an effective habitat management program that can address challenging issues such as native grassland restoration.

Divestiture of Lake Thibadeau National Wildlife Refuge

The Service will divest the Lake Thibadeau National Wildlife Refuge because of its lack of habitat. This limited-interest refuge offers little value to wildlife, and the purposes for which this area was first established in 1937 are no longer attainable. Native prairie areas are now farmed intensively. Due to upstream development, Lake Thibadeau, Grassy Lake, and Mud Lake are often dry and farmed in most years. The Service owns less than 1 percent of the lands within the refuge's approved acquisition boundary; the remaining private lands are encumbered by easements that do not prohibit development, grazing, or agricultural uses.

Abbreviations

ac	Acre
A.D.	Anno Domini or "in the year of the Lord"
BAER	Burned Area Emergency Response
BAR	Burned Area Rehabilitation
CCP	Comprehensive conservation plan
CFR	Code of Federal Regulations
cfs	Cubic feet per second
cm	Centimeter
CO_2	Carbon dioxide
Compact	Montana House Bill Number 717–Bill to Ratify Water Rights Compact
Compact Commission	Montana Reserved Water Rights Compact Commission
district	Wetland management district
DEQ	Montana Department of Environmental Quality
DNC	Dense nesting cover
DNRC	Montana Department of Natural Resources and Conservation
EA	Environmental assessment
EC	Electrical conductivity
EPA	U.S. Environmental Protection Agency
ESFO	Ecological Services Field Office
°F	Degrees Fahrenheit
FmHA	Farmers Home Administration
ft	Feet, foot
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information System
GLO	General Land Office
gpm	Gallons per minute
GPS	Global Positioning System
GS	General Schedule (pay)
HAPET	Habitat and Population Evaluation Team
Improvement Act	National Wildlife Refuge System Improvement Act of 1997
MBOGC	Montana Board of Oil and Gas Conservation
mg/L	Milligrams per liter
mmhos/cm	Millimhos per centimeter
MOA	Memorandum of agreement
MOU	Memorandum of understanding
mS	MilliSiemens
MSGWG	Montana Sage Grouse Working Group
NEPA	National Environmental Policy Act
NWR	National wildlife refuge
ppt	Parts per thousand
Reclamation	Bureau of Reclamation

refuge	Refuge within the Bowdoin National Wildlife Refuge Complex
refuge complex	Bowdoin National Wildlife Refuge Complex
Refuge System	National Wildlife Refuge System
RLGIS	Refuge Lands Geographic Information System
Service	U.S. Fish and Wildlife Service
TDS	Total dissolved solids
TSR	Township, section, range
µmhos/cm	Micromhos per centimeter
µS/cm	MicroSiemens per centimeter
U.S.	United States
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USRS	U.S. Reclamation Service
WG	Wage Grade (pay schedule)
WMD	Wetland management district
WPA	Waterfowl production area

Definitions of these and other terms are in the glossary, located after chapter 4.